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Botany for Young People.

THE letter entitled "Mocking at Knowledge," which will be found on another page, calls attention to certain misapprehensions which are not uncommon. Indeed, there are many intelligent people who seem ready on all occasions to discourage the study of botany even in its simplest and most attractive forms. They would be shocked if charged with indifference to knowledge of other natural sciences, but they seem to consider a desire to study botany on the part of any young person as a foolish endeavor to pry into a subject so profound that only a "smattering" of it can ever be learned, and a smattering of knowledge is declared worse than entire ignorance. Another objection to the study is that the more one learns about plants the less will one appreciate their beauty. The scientific attitude is held up as the reverse of enjoyment; scientific knowledge is proclaimed to be deadly to artistic or poetic feeling. "Why," it is said by those who should have spoken more wisely, "can any one want to pull flowers to pieces to learn their hideous Latin names? What is the good of it in the end, and must it not destroy all sense of beauty which we, in our happy ignorance, enjoy so keenly?"

No one believes that a knowledge of astronomy destroys all pleasure in the splendor of the midnight sky, or a knowledge of geology all interest in the grandeur and variety of the earth's surface. But trees and flowers must not be studied unless the student is willing to exchange the pleasure of the eye for whatever barren satisfaction he may find in hard names and withered, dissected specimens. It is probable, however, that one cause of this odd belief is the idea that to study botany means simply to learn Latin names, and that the knowledge of these names is its own only end and aim. If this were true botany would indeed be a dry and not very useful study, although there would still be some benefit in being able to speak of plants exactly instead of inexactly, and to speak of any possible plant instead of a comparatively restricted number. But to learn Latin names is only the first step in learning to know the plants they represent—a needful step if one's knowledge is ever to amount to much, but in no sense an end or aim. When a simple handbook can be used so that the name of a plant can be found in it (the common name, as our correspondent points out, always appearing with the scientific), then all other facts about the plant can be read at a glance; and unless this can be done most of these facts will never be gathered. Knowing the name, we find the manner of the plant's growth, the regions where it is common or rare, the character of the spots where it may most hopefully be looked for, its seasons of blooming and fruiting, and its relationship to other species, with the facts upon which this relationship is founded, as well as those which make its own individuality clear. Is not all this worth knowing, even at the cost of dealing for the moment with the ugliest of Latin names? If a child finds a rosy Arethusa with twin blossoms, will not his pleasure in it and his desire to search for other flowers both be stimulated by the knowledge that his treasure is a very rare one? Or if he discovers that the pretty little Bunch-berry which carpets some woody spot is first cousin to the big Flowering Dogwood, and discovers too the reason why, will not his interest in it be increased? Let him learn why an Orchid is an Orchid, why the tiny Ladies' Tresses deserve the name as much as the gorgeous Cattleya or Oncidium of the greenhouse, and he has gained something which surely cannot decrease his enjoyment of the beauty of either.

But to do this, it may be objected, beautiful flowers must be pulled to pieces, and this will "deaden the sense of beauty." By no means. The truth is quite the other way. No one who has not once pulled a flower to pieces can realize, in the great majority of cases, how beautiful it is. All its beauty is not in its larger features or on the outside of its cup. In the interior, in the hidden recesses where the great work of reproduction goes on in a myriad different ways, each more marvelous and admirable than the other—here resides a great part of the beauty of all flowers and the greater part of the beauty of not a few. Even if it led to nothing but a knowledge of Nature's delight in making the tiniest features of her productions lovely to our eyes, the close examination of floral structures would be well worth many hours of a busy man's time. Once this has been learned, we do not need always to see it. Seeing the flower as a whole, we not only know its name, habits and relationships, but remember its structure. The exterior suggests the interior, and a knowledge of the interior explains the lovely individuality of the envelope.

This is sufficient to prove, we think, that even a smattering of botanical knowledge is better than entire ignorance. Archbishop Whately long ago pointed out that this word has two distinct significations. One of these is a superficial acquaintance with a subject and some pretentious display of slight acquirement. The other simply means rudimentary acquaintance, and must be the beginning of all knowledge. Even the slightest smattering, in this latter sense, of botanical knowledge will greatly increase instead of lessening the enjoyment of any one who by nature has any love for flowers.

But there will be a further gain. Once let a person begin to study plants and he will desire to increase the list of his acquaintances; and then he will use his eyes as he never did before. He will discover beautiful flowers whose existence in the neighborhood none of his mocking friends ever suspected. He will see a hundred things where they will not see ten. Having learned to appreciate beauty on a small scale, he will seek for it instead of waiting for it to strike his eye, and will find it in the most unpromising places. He will delight in the exquisite beauty of the infinitesimal blossoms of the Door-weed on which passive, uninstructed observers will never have perceived a blossom at all; and will be enchanted by the flowers of the Pigweed even, despised of the multitude, but honored by him as a treasury of interest. Nor, surely, will his new appreciation of such humble charms lessen his feeling for the splendor of the Iris he finds in the swamp or the Meadow Lily that flaunts by the way-side.

To learn enough to thus widen one's interest in Nature's products is not a very difficult task. Indeed, there is no other science in which a beginning is so easily made or gives so large a return in pleasure. Materials for study are everywhere at hand; no traveling is needed, no great exertion and no outlay of money. The needful tools are as easily procured. A single volume like Gray's "New Manual and Handbook" will give all requisite preliminary instruction, full descriptions of all plants within a very wide area, a glossary of terms to help out the weakest memory, and, as our correspondent says, a dictionary of common names. With a knife, a long pin and a common magnifying glass the student has all he wants; and plants, even when withered and dissected, make a litter to which no mother would object as she might to the materials of the boy who has a passion for flying and creeping things. A few weeks of work, with living plants to illustrate the printed text, will seem more like play than work, and will enable any young person to identify all the plants in the neighborhood of his home. Any one who knows what is meant by such a study of botany as suffices for this purpose, and what is its immediate return in the increase of enjoyment and the development of the observing faculties, may well be astounded that any prejudice against it should ever be harbored. Of all the sciences this is the one whose study should meet with every encouragement as a happy and useful employment for our young folks' summer hours.

In the last annual report of the President of Harvard College, recently issued, Mr. Eliot calls attention to the pressing need of a better endowment for the Gray herbarium than that establishment now enjoys. The income of the herbarium last year was only about $3,300, two-thirds of which was derived from the copyrights which Professor Gray bequeathed to it. From this slender income, which, so far as regards the value of the copyrights, is liable to diminish rather than to increase as years go on, the salary of the Curator must be paid, the collection must be kept in order and extended, and the library kept abreast of the times.

The Gray herbarium is the national herbarium of America in everything but name. No other collection of dried plants in the new world equals it in size and in importance; and its value for reference will continue, although it is possible that larger collections may in time be formed in better endowed establishments. No other herbarium, however, whatever its financial strength may be, can ever possess so many of the type specimens of the American flora, or can supplant the Cambridge collection as the final place of reference for determining the identity of the plants described by Professor Gray and his associates. No critical student of American plants can take a step in his investigations without referring to the Gray collections, and their value is so great and so generally acknowledged that Mr. Eliot's appeal for a better herbarium endowment cannot long remain without a favorable response.

There is a pressing need in the herbarium of well trained and capable assistants, that the Curator may be relieved of the daily drudgery of caring for the collections, and be left to carry forward the unfinished "Flora of North America," on which Asa Gray worked for nearly half a century and left only half completed. It can be finished at Cambridge only and by an author thoroughly trained in systematic botany. This book is now more needed than any other work of descriptive botany, and no mere financial difficulty should be allowed to stand in the way of its completion.

Mr. Eliot asks for the sum of $40,000 with which to endow the Gray herbarium. It appears to us that the sum is much too small, in view of the importance and reputation of the collection, and the extent and character of the botanical work the public has learnt to expect from Cambridge. What the Gray herbarium really needs is a permanent endowment which will produce an income of not less than twelve or fifteen thousand dollars; and its greatest usefulness and efficiency cannot be secured with a smaller sum. Harvard College has for years been supreme in America in systematic botany, and she cannot now allow her position as a leader in this department of knowledge to be jeopardized through inability or unwillingness to properly support her great herbarium, or to pay the price of leadership.

A few weeks ago we spoke with approval of certain bills relating to our public forests which are now under consideration by Congress. It should not be forgotten, however, that the people who wish to convert the timber on the national domain to their own private use are quite as energetic as those who wish to protect it. There are some nominal safeguards in the forms of law already which are supposed to have been enacted to prevent the spoliation of the public forests, but owing to essential defects in the laws or their administration they have proved ineffective hitherto, as is well known. Even these laws, however, are looked upon as too much of an obstacle in the way of free access to the public forests, and a bill of Senator Teller's now before the Public Lands Committee seems to have been devised to enable everybody who feels so inclined to help himself and his friends to all the timber they can use or sell.

The bill is entitled "A bill authorizing the citizens of certain states and territories to fell and remove timber on the public domain for mining and domestic purposes," and it seems well contrived to accelerate forest destruction. The little formalities needed under this scheme to clothe any one with power to take timber from the public forests are to be entrusted to the registers and receivers of the Land Office, who already have more duties than they can properly perform, and altogether the timber-cutters would have a merry time under the provisions of the proposed law.

An Alley in the Tuilleries Garden, Paris.

THE garden of the Tuilleries was laid out, by Le Nôtre, in 1665. Since the Revolution its design has been somewhat modified, but most portions still show the arrangements of the great master of formal gardening design. Upon one side fronted the palace, which was destroyed in 1871, the ground it covered being now laid out with paths, lawns and flower-beds, as described in the article on "French Parterres," published in our issue for January 29th. This change has, however, only increased the beauty of the Tuilleries gardens, for, as we stand in their central alleys, the eye, instead of being stopped by the façade of the palace, looks over the newly planted ground into the vast court-yard formed by the Louvre, where rises the Arc du Carrousel, and beyond it a number of small, park-like enclosures with fine trees. All this large and beautifully arranged place and the great buildings about it were formerly concealed by the façade of the Tuilleries, and, therefore, admirable as this was in itself, its loss is more than made good. Again, standing back within the quadrangle, we now have, enframed in its wings, a majestic perspective unrivaled in any modern city—first, the Arc du Carrousel, then the brilliant new garden, then the massive plantations of Le Nôtre, and beyond them the obelisk of the Place de la Concorde, and past this the long, rising slope of the Champs Elysées, with the Arc de Triomphe standing majestically against the far distant sky. The long, gentle rise in the ground beyond the Place de la Concorde adds vastly, of course, to the effect of the picture, but only a nation with a true instinct for art in its most monumental phases could have utilized it to such good effect and brought it into one great composition with the Tuilleries gardens, a century and a half after these were formed.

The palace faced on one of the narrower sides of the garden as it lay by the bank of the Seine. Along this river-side and the remaining two sides as well, Le Nôtre arranged elevated terraces, planted with avenues of trees. At the western side, opposite the palace, two great curving stairways of marble lead to the terrace and the Place de la Concorde beyond; and smaller stairways rise on the river-side, and, opposite this, to the Rue de Rivoli. In our picture we see the houses that form the Rue de Rivoli, and, in the distance, the tall pavilion which finishes the north side of the Louvre and

once joined it to the Tuilleries palace. The terrace on this side is called "La terrasse des Feuillants," from a convent of Benedictines, or "Feuillants," which formerly adjoined it, and, during the early days of the Revolution, was the rallying place of the moderate republicans. It is thickly shaded with old Lindens, and in summer forms a delightful promenade overlooking, on one side, the busy street, and, on the other, the wide, quiet, graveled space called the "Allée des Orangers." The Orange-trees are wintered in a house that stands near the river, but in summer are set out in long lines, which add vastly to the dignity of the garden by their symmetrical, architectonic shape, and to its charm by the perfume they exhale. Many of the trees are very ancient, but they are well cared for, and, in form as well as profusion of bloom, satisfy the most critical eye. The wooden boxes in which they stand are painted a delicate, dull pale green, which contrasts well with their dark foliage and harmonizes well with the pale tone of the gravel.

The trees shown at the right of our picture indicate plantations of rectangular form which border both sides of another alley, likewise furnished with rows of Oranges. Here, not far away from the point where we stand in the picture, is a little café, ignored of the tourist—a low, isolated building with an awning and tables facing toward the interior of the garden. Stumbling on its quiet shelter, one can realize the blessing that his beautiful urban parks must be to the Parisian. We are thankful for a small, noisy space like Madison or Union Square. But here in the very heart of Paris there is little except the subdued roar of the Rue de Rivoli behind us to tell that a city exists. In front of the tables are Oleanders and Pomegranates blooming in pots; to the right and left stretches the long perspective of thick, straight-edged plantations supported by the lines of Orange-trees, and beyond is the charming reach of flowery parterres which once formed the private garden of royalty (shut off from the main garden by a moat, now bridged, and a railing, now removed), and still further, the stately avenues long ago planted by Le Nôtre in the centre of the Tuilleries enclosure. There can be nothing more delightful than such a scene on a warm, glaring day when one is surfeited with streets and men, for the quiet is enlivened merely by an occasional nurse-maid and her troop of little ones. But best of all, perhaps, is one of those days of alternate sun and shower which are frequent in Paris even in midsummer. Then the changes of light give each moment a new picture, newly tempting to the painter's hand; and under our protecting awning we can watch the white-capped nurse-maids scurrying before a shower with a little, yet not too much, of that feeling of pleasure in other people's misfortunes which one of their compatriots long ago declared to be a joy dear to all human hearts.

Holiday Notes in Southern France and Northern Italy.—XI.

NICE, a beautifully situated city, is one of the most popular of Mediterranean health-resorts. The mean winter temperature is ten to fifteen degrees Fahr. higher than that of Paris, and the mean summer temperature from five to ten degrees lower. February is the coldest month, and the mean temperature for that month—according to M. Teysseire's published records of twenty years' observations taken with instruments placed outside his window on a fourth floor facing the north-north-east—is forty-six and two-tenths degrees.

The fine avenue of *Eucalyptus globulus* near the railway station at once attracts the attention of the stranger at Nice; here the trees are of considerable height and bulk, and at the time of our visit the smooth polished, white or pink tinted stems looked very picturesque; the bark still hung in long flakes from the larger branches. In many places along the Riviera the Eucalyptus present but a sorry appearance; at Nice, on the contrary, they seemed to have soil which exactly suited their requirements. The famous Promenade des Anglais, with its long range of Date Palms, Oleanders, etc., presented nothing remarkable from a garden point of view, nor did the Public Garden, except a group of Pines, clothed with *Wistaria Sinensis*.

The gardens belonging to the King of Würtemburg scarcely repaid the trouble of a visit; as in nearly all the Riviera gardens, there was hardly a green blade of grass to be seen in mid-September, and beds of Zinnias, colored Amaranths, etc., only brought into greater relief the burnt up lawns. A sort of cascade and a piece of rockwork seemed altogether out of place. The only feature of special interest was the fence of tall black and yellow stemmed Bamboos; the first named was *Phyllostachys nigra* (*Bambusa nigra* of gardens), with tall, polished, black stems, far higher and thicker than ever they are seen in England, and the other probably a species of Arundinaria.

Lambert's nursery is well worth a visit; various species of Phœnix were here cultivated in enormous quantities, amongst them *P. tenuis*, *P. Leonensis* (no doubt the south African *P. spinosa*), and *P. Canariensis*. Specimens of *Washingtonia filifera*, in tubs and in the ground, were numerous. Thousands of Camellias and Gardenias were also growing in nursery quarters; a goodly proportion of the latter would be taken up a little later and placed under glass in order to supply the demand for cut flowers during the Nice season. Amongst Ferns, *Pteris tremula* and *P. Cretica* were grown in large quantities, in the open ground, in beds, and also between the rows of Palms, etc. The establishment of Besson Frères is also well worth a visit, Palms and Bamboos being cultivated on a large scale. The fine rows of the Chusan Fan Palm, *Trachycarpus* (*Chamærops*) *excelsus*, in the grounds of the Paris Exhibition, mostly came from the nursery just named.

The Castle Hill, in the south-eastern portion of the city, about 320 feet high, is crowned by the ruins of the castle destroyed by the Duke of Berwick at the beginning of the eighteenth century. There are fine grounds—quite a forest of *Pinus Halepensis*, with stems taller and straighter than any we saw elsewhere along the Mediterranean—and Date Palms, Aloes, Agaves, etc., in abundance. Splendid views in all directions are obtained from above the pretty waterfall, which is fed by an aqueduct. During the period of our visit part of the grounds were closed to the public, being occupied by the tents of the soldiers who had been brought there on account of some fever outbreak in their barracks. The long lines of tents and the brightly colored uniforms under the waving Palm-trees lent an additional charm to a wonderfully pretty spot. On the north side of the hill are situated the different cemeteries, our coachman, with charming simplicity, pointing out one which he said belonged to the Protestants—that of the Christians, he added, is further over. It appeared to us that some of the steep slopes bordering the winding carriage drive to the top of the hill might have been clothed with Lentisk, Myrtle and other indigenous plants, which certainly would thrive better and produce a more pleasing effect than the Agaves, which had not soil enough to develop properly.

One of the specialties of Nice is candied Parma violets, which are sold in pretty little round boxes; the petals of Orange-flowers are also candied.

Kew. *G. Nicholson.*

Foreign Correspondence.

London Letter.

HOW to make fruit-culture in England pay has become a problem of some considerable importance within the last two or three years, or, say, from the time when Mr. Gladstone made what is now known as the Great Jam Speech. In addition to the important work done in this direction by the Royal Horticultural Society, there is also the special effort made this year by the Fruiterers' Company, with the great influence of the then Lord Mayor at its back, and we have now a third body called the British Fruit Growers' Association. The objects of this new Association appear to be similar to those of the Royal Horticultural Society in respect to fruit culture, namely, to hold public meetings and conferences in various parts of the country, to collect information, reports, essays, etc., and publish them, to award prizes and certificates; in short, to propagate the gospel of fruit-culture in such a way as shall develop to the fullest the capabilities of the land and its cultivators in the production of hardy fruits. There is a wholesome tendency now toward rigorous selection; bad sorts are to be condemned from the housetops, so that no nurseryman will attempt to grow them; good sorts are to be as loudly recommended, so that none but these shall in future be planted. This is good work. The unwary public are too often persuaded to plant varieties of fruit-trees which are as worthless as Oaks as a source of marketable fruit. There are far too many varieties at present, and if the various societies which have undertaken to push this business succeed in weeding out all worthless kinds, they will have performed good work. What with conferences and reports on fruit exhibited, the public generally know, or ought to know, a great deal more about the merits of different kinds of fruit than they ever did before. Meanwhile, the great bulk of the apples consumed in England during the winter and spring are from America, and being much cheaper than English-grown fruit, they are, as a rule, more palatable than the English

apples offered by the ordinary dealer in winter. Two useful publications devoted to this subject are the cheap edition of Mr. Barron's "Conference Report on Apples," price one and sixpence, a most comprehensive, reliable and well arranged descriptive catalogue, with comments by the author, who is perhaps the first authority on fruits in England. The other publication is Mr. J. Wright's prize essay on "How to Make Fruit-growing Pay." This work was written for the Fruiterers' Company, and is a marvelous shilling's worth of practical information by an eminently practical authority on hardy English fruit.

Grafting.—Mr. Parsons' trenchant remarks on this subject are an overwhelming testimony against those ill-advised authorities who set out to convince English gardeners that they were being defrauded by the nurserymen who sold them grafted fruit-trees instead of own-rooted ones. It was difficult to believe that those who condemned grafting of all kinds as a makeshift and a fraud were in earnest. The crusade against grafting in England collapsed suddenly. Probably the Fruit Conferences, held recently, carried conviction to the minds of the few who appear to have thought that they had but to cry out against grafting to get it condemned.

Odontoglossums.—I learn that the cultivation of these plants in America is not so satisfactory as it is in England, owing to the excessive heat of your summers. Have these Orchids been tried in a cool, shaded position out-of-doors during summer? In Germany this treatment is practiced for cool Orchids with considerable success. Most Odontoglossums grow well in the open air during summer in England, and Mr. Sander has for several years practiced a method for the cultivation of these plants which may lead to their being grown in beds outside pretty much as we grow the Andean Begonias now, namely, plant them outside for the summer, lifting and resting them in-doors in winter. The method referred to is simply planting Odontoglossums in beds of peat in low span-roofed houses and treating them as if they were as terrestrial as Disas. The bed is formed by two walls supporting slabs of stone, and upon these is placed a layer of drainage, broken soft brick being preferred. About three inches of good rich peat, not fibre merely, but pure peat, is placed upon the drainage, and in this the Odontoglossums are planted in rows. Small plants with pseudo-bulbs an inch or so in length produce the first year under this treatment pseudo-bulbs as large and almost as plump as bantams' eggs. Out of what was originally I believe merely a makeshift plan for overcoming pressure of work, Mr. Sander has developed what was described recently by a very eminent botanist as the most astonishing of recent revelations in horticulture. It may, as I have already said, bring us to something not far from "bedding out" for epiphytal Orchids.

Phœnix Roebelini.—This is a very distinct and pretty little Palm lately introduced from Siam and now in the possession of Messrs. Sander & Co. There is no Phœnix like it, the nearest being *P. rupicola*, the most elegant of the species hitherto known. By the side of this, however, *P. Roebelini* is the veriest pigmy, its stems scarcely thicker than a walking stick and almost smooth, and its leaves a foot or so in length, regularly pinnate, the pinnæ as narrow and elegant as those of *Cocos Weddelliana*, shining dark green and plume-like. I have not seen so charming a Palm for a long time. Messrs. Sander hold the entire stock of it. Although introduced only last year, the plants are in good condition and well furnished with healthy foliage. As a table plant this Phœnix is certain to become a general favorite.

Eranthemum aurantiacum.—The most attractive stove plant in flower at Kew now is this dwarf species of Eranthemum. The tallest of the plants is not a foot high, and they are all clothed with gray-green foliage, which forms a suitable foil to the bright scarlet color of the flowers. These are in erect terminal spikes, and whilst the open flowers are scarlet, the buds are bright yellow. A group at Kew is composed of some twenty plants of the Eranthemum, arranged under graceful Palms, etc., with a few plants of the rich indigo-blue-berried *Psychotria cyanococca*, whose bunches of fruit suggest miniature bunches of currant-grapes. Both these plants are raised annually from seeds, this method being preferable to cuttings.

Epacris.—The value of these plants in winter is appreciated here in all good gardens. A selection of the best varieties is grown for the Kew conservatory, and these, when in flower, are greatly admired. The plants are cut down hard in spring, started in a little warmth, then repotted and allowed to get well rooted in the new soil before being exposed to the outside air. With this treatment they make new shoots from a foot to eighteen inches long, and clothed their whole length with flowers. White, pink, crimson and variegated are the colors of the flowers. The best varieties are the Hyacinthiflora kinds, and those represented by *E. miniata*. Unless they are cut well back and started in a brisk, moist heat in early spring, Epacris do not make the growth long enough and ripen it in sufficient time to ensure a good winter display.

London. *W. Watson.*

New or Little Known Plants.

Rosa foliolosa.

THE Prairie Rose of the south-west is one of the more distinctly marked species of the genus as represented in America. In habit it is low, rarely more than a foot in height, spreading by running root-stocks and forming clumps. The stems are slender and leafy, often unarmed; the spines, when present, mostly slender and straight, or nearly so. The leaves are nearly or quite glabrous, pale green and shining above, of seven to eleven small, narrow leaflets, which are acute at both ends, or only acutish at the apex, and simply toothed. The narrow stipules are usually glandular-ciliate, and the stalk of the leaf prickly. The rather large flowers are bright pink and very fragrant, almost always solitary and on quite short pedicels. The depressed-globose hip and the sepals are glandular-hispid, and the outer sepals narrowly lobed.

This little Rose was first collected by Thomas Nuttall during his early visit to Arkansas in 1818–20, but was not published until twenty years afterward, when it was described in Torrey and Gray's "Flora of North America" (vol. i., p. 460). Meantime it had been found by Berlandier and Drummond in Texas, and by other collectors. It appears to be confined to the prairie region of Arkansas, the Indian Territory, and northern and central Texas. A nearly allied species (*R. Mexicana*), found by Dr. Palmer in the mountains of Coahuila, Mexico, is the only species known to be native in Mexico proper.

The accompanying figure, on page 101, was drawn by Mr. Faxon from a specimen cultivated at the Arnold Arboretum. *S. W.*

Cultural Department.

An Analysis of Grafting.

IT is well nigh incredible that any doubt can exist as to the general efficiency or necessity of grafting; and yet the discussions which have run through various journals, mostly foreign, during the last twelvemonth, indicate that the entire utility of the practice is questioned. A careful attention to the discussion reveals the fact that much of it is random, and that generalizations are too often made from local or insufficient facts. We often find that the truth is overlooked or obscured because of the lack of clear-cut definitions and analyses; such is particularly well illustrated in the perennial discussions of "acclimation," concerning which no one knows what his neighbor is talking about.

The practice of grafting—if we use the word to include both grafting and budding, after the manner of the French *greffage*—is so universally and unhesitatingly accepted by nurserymen and growers that no fear of its abandonment need be entertained, no matter what authority may condemn it. But we do need to know more about it, for ever since the absurdities of Pliny and Columella were recorded, it has been a fertile field of misconception and quackery. I do not wish to offer a defense of the practice; none is necessary. But a simple outline of reasons and results, with no attempt to multiply examples beyond the point of mere illustration, may serve a purpose.

It may be said that there are three leading reasons for grafting:

I. To perpetuate a variety. II. To increase ease and speed of propagation. III. To produce some radical change or promote some adaptation in the stock or cion.

The first two statements need no elaboration here, but the third is moot ground, and demands subdivision. These secondary results of grafting, as they may be called, or reciprocal influences of stock and cion, fall readily under the following heads:

1. Grafting may modify the stature of the plant. It is the commonest means of dwarfing plants. We graft the

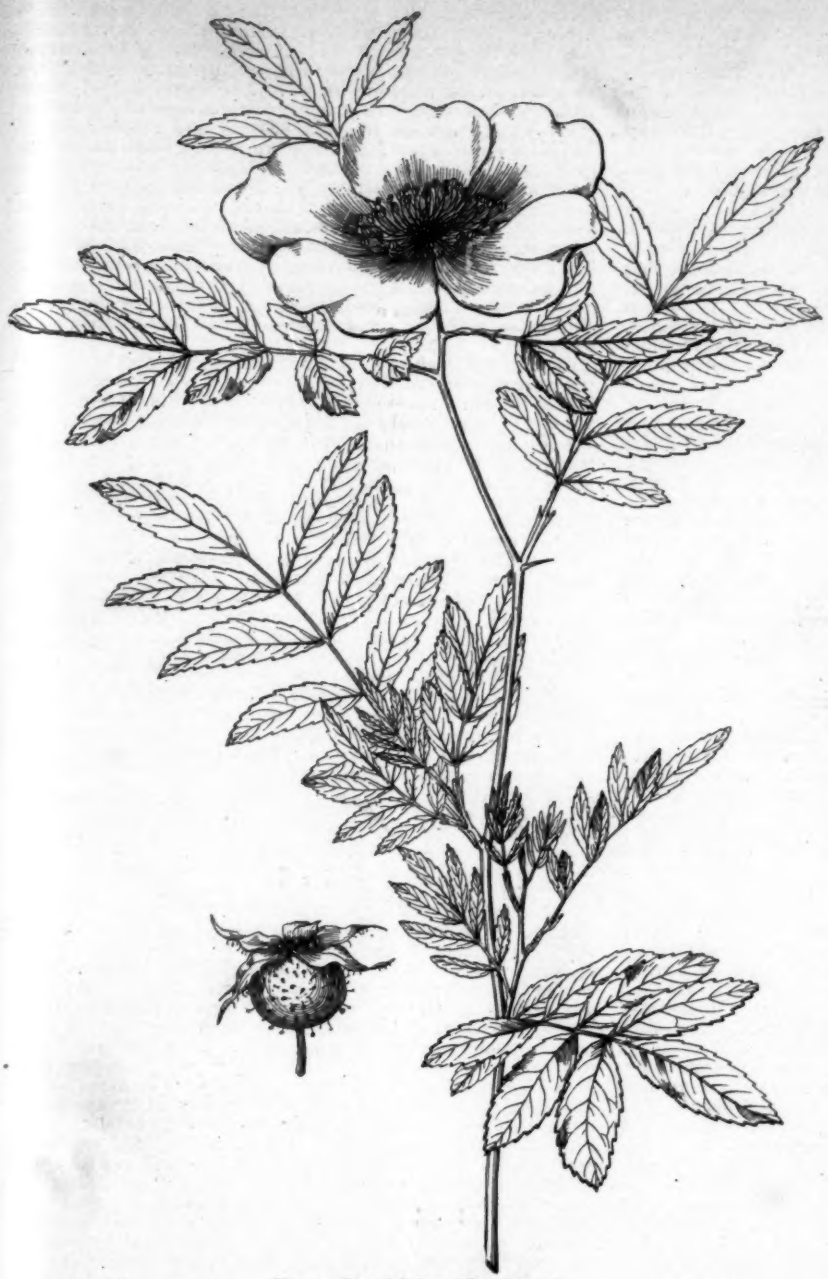

Fig. 22.—Rosa foliolosa.—See page 100.

Pear upon the Quince and the Apple upon the Paradise Apple. This dwarfing usually augments proportionate fruitfulness.

2. Grafting may be made the means of adapting plants to adverse soils. Illustrations are numerous. Many varieties of Plums, when worked on the Peach, thrive in light soils where Plums on their own roots are worthless. Conversely, some Peaches can be adapted to heavy soils by working on the Plum. If dwarf Pears are desired on light soils where the Quince does not thrive, recourse is had to grafting on the Mountain Ash, or some of its allies. In some chalky districts of England the Peach is worked on the Almond. Some Plums can be grown on uncongenial loose soils by working them on the Beach Plum. Professor Budd states, GARDEN AND FOREST for February 12th, that the Gros Pomier Apple is particularly adapted to sandy land and the Tetofsky to low prairie land, and that these stocks are often selected to overcome adversities of soil. Such instances are frequent, and demand greater attention from cultivators.

3. Grafting may be made the means of adapting plants to adverse climate. This may be brought about by either or both of two causes: (*a*) The early maturation of the stock, causing the cion to ripen better. The Oldenburgh Apple is a favorite stock in severe climates for this reason. The Siberian Crab often has the same influence, although its use is open to serious objection. (*b*) A slightly imperfect union, causing the cion to mature or ripen early. This fact has been observed in many cases, notably in some instances of Apples upon improved Crabs, and yet the union is often perfect enough, nevertheless, to maintain the plant in a profitable condition for years. There are some adaptations to climate, however, which are not explained by either of the above hypotheses.

4. Grafting may correct a poor habit. All propagators are aware of this fact. The Canada Red Apple is usually top-worked to overcome its weak and straggling habit. The Winter Nelis Pear is a familiar illustration.

5. Grafting is often the means of accelerating fruitfulness—*i. e.*, plants are made to bear at an earlier age. Those who test new orchard-fruits are familiar with this fact. Cions from young trees bear sooner if set in old trees than when set in young ones. This result may be due to the same causes which abbreviate the vigor of plants, as already outlined (see § 3, above). Checking growth induces fruitfulness.

6. Grafting often modifies the season of ripening of fruit. This is brought about by different habits of maturity of wood in the stock and cion. An experiment with Winter Nelis Pear showed that fruit kept longer when grown upon Bloodgood-stocks than when grown upon Flemish Beauty-stocks. The latter stocks in this case evidently completed their growth sooner than the others. Mr. Augur cites an instance in which the Roxbury Russet, grafted upon the Golden Sweet, which is early in ripening, was modified both in flavor and keeping qualities. "Keeping qualities" is but another expression for "season of ripening." These influences are frequent; in fact, they are much commoner, I am convinced, than we are aware.

7. Grafting often augments fruitfulness, largely for the same reasons as discussed in § 3. There are some anomalous instances of increase of fruitfulness, which are difficult of explanation —*e. g.*, some citrus fruits are more productive when grafted upon *Limonia trifoliata* than upon their own roots.

8. Grafting often delays the degeneration of varieties. In various ornamental plants this influence is marked, as compared with plants from cuttings. It is recorded particularly in certain Roses and Camellias.

9. Grafting sometimes increases the size of fruit. The best illustrations of this fact are found in certain Pears when grown upon the Quince—the fruit is often larger than from standard trees.

10. Grafting may result in a modification of color of foliage, flowers or fruit. Assumed influences of this character are frequently recorded, but it is not always possible to determine how much of the modification may be due to soil, climate and treatment. The best instance which I now recall occurred in my own practice. *Prunus Pissardi* gave much more highly colored foliage when grafted upon *Prunus Americana* than upon *P. domestica*. The cions came from the same tree, and the grafted trees stood in the same row. Any acceleration in ripening of fruit (as indicated in § 5) is apt to cause high

color, but the intensification of color in *Prunus Pissardi* was not due to such cause, as the grafts were more vigorous upon *P. Americana*.

11. Grafting may influence the flavor of fruit. There can be no question but that apples often derive acridity from the stock when worked upon the Wild Crab or upon the Siberian Crab. It is commonly supposed that the Angoulême and some other pears are improved in flavor when grown upon the Quince. Downing asserts that some varieties "are considerably improved in flavor" by working upon Quince.

A favorite illustration in support of the reciprocal influences of stock and cion is the fact of transfer of color or variegation by grafting. Darwin called attention to this phenomenon, and used the term "graft-hybrid" to designate the mongrel offspring of certain unions. But this class of phenomena seems to follow inoculation rather than grafting *per se*. The transferable nature of variegation is well known in certain species, but it is entirely inexplicable in the present state of our knowledge; it seems certain, however, that it does not merit attention under a discussion of grafting. So long ago as 1727 * variegation was designated a "distemper," which "may be communicated to every plant of the same tribe by inoculating only a single bud." In our own day Morren has called it the "contagion of variegation."

The above outline illustrates the fact that the results of grafting are profoundly modified by conditions. Adverse conditions must give unsatisfactory results, and may lead to a premature denunciation of the whole system of propagation upon the roots of other plants. But, on the other hand, proper conditions and good execution afford abundant and positive proof that grafting—using the word in its broad sense to include budding—is essential to best success in many departments of horticulture.

Cornell University. *L. H. Bailey.*

Garden Flowers and Fruits in Midwinter.

THE mildness of the present winter and the evidences of it as shown by the condition of vegetation in consequence, have been a subject of frequent comment in the horticultural papers of the country. Such winters as this has so far proved in the region about Boston, although not common, are by no means unknown. The winter of 1888–'89, although generally considered very mild, was much colder than this. It is not often that, even in a southern exposure in New England, Snowdrops may be gathered in abundance in January and February, as has been the case this year, or that the sweet-scented single Violets can be found in any number. In a well known garden near Boston a clump of Christmas Roses (Helleborus), growing on the south side of some shrubbery, began blooming in November, and in the second week of February still continued to bear in perfection handsome white blossoms. The only protection given was that of a small box with a glass top during the coldest days and nights.

The herbaceous plants, however, play but a very small part in giving interest and ornament to the New England garden in midwinter. It is naturally from the trees and shrubs that the greatest pleasure is to be derived, and the shrubbery that is planted with a judicious selection of those species which retain their foliage or fruits, or which are distinguished by bright colored stems and branches, is certain to lend much brightness to otherwise wintry aspects.

A few shrubs are deservedly valued for their persistent bright fruits, and this winter one or two at the Arboretum are conspicuous by their flowers. The Japanese Witch Hazel (*Hamamelis Japonica*), which is still rare in cultivation, was, on February 5th, almost in full bloom, many of the anthers of the open flowers having shed their pollen; and a week later the plants were in their best and handsomest condition, the small branches bearing a profusion of pretty pale yellow blossoms. Of all early flowering shrubs this may be counted the most valuable, as it will add a new and cheerful feature to our gardens in late winter. The beauty of the flowers does not appear to be at all affected by alternate slight freezings and thawings, and they remain conspicuous for several weeks. This plant is said to become a small tree twenty feet or more in height in its native country, and as it is perfectly hardy here, it may also be expected to attain large size. It may be added that the plants in the Arboretum collection are grafted upon stock of our native Witch Hazel (*H. Virginica*), and appear to thrive well although they grow rather slowly. The *Hamamelis arborea* of European catalogues is a synonym or but a garden form of this Japanese species.

The common European Hazel (*Corylus Avellana*) was found freely shedding its pollen on February 5th, and, although not a very striking plant at this season, the pollen-bearing catkins are interesting and graceful. A week later the European Alder (*Alnus glutinosa*) was in flower, growing in a sheltered situation beside a running brook. Two closely allied Asiatic Honeysuckles (*Lonicera fragrantissima* and *L. Standishii*) opened a few of their fragrant flowers and ripened anthers early in February. The buds are among the easiest and quickest to develop and expand into blossoms when cut off and taken into the house in winter, and they well repay the trouble, for the fragrance is as sweet as that of violets. *Erica carnea* does best when slightly protected in winter, and if the covering is removed it will be found in a good state of bloom. This is nothing new, as a part of the rosy colored blossoms open in the autumn and the rest in spring. In the same way a few open flowers may be detected on the racemes of *Andromeda floribunda*, and also on *Andromeda Japonica*, in warm situations.

Chief among showy winter fruits would rank the bright red or scarlet of the Mountain Ashes (*Pyrus Americana* and the European *P. aucuparia*), if, in this latitude, the birds did not almost invariably eat them early in the season. As being less liable to be devoured, the next best large-growing plant is the Cranberry-bush (*Viburnum Opulus*), the fruit of which, although very soft and somewhat shriveled, and not in a state to handle, is still quite conspicuous in large pendulous clusters. The scarlet fruit of the Black Alder (*Ilex verticillata*) remains firm and fresh-looking, as does that of the more sparsely fruited *I. lævigata*, but it often appears faded on the side much exposed to the sun.

A number of species of native and foreign wild Roses retain firm-looking and sometimes bright-colored hips throughout the winter, and among them all our native Swamp Rose (*R. Carolina*) is most pleasing and showy, with large corymbs of somewhat bristly dark scarlet fruit. Among Cotoneasters the species known as *C. Simonsii* is the most pleasing winter-fruited one in the Arboretum. The fruit is large, smooth, and bright scarlet in color. The Evergreen Thorn (*Cratægus Pyracantha*) is not as hardy as could be desired in New England, but in some situations gives satisfaction by its evergreen habit and especially by its bright fruit. The Washington Thorn (*Cratægus cordata*) is the only other species here which retains fruit with much color. Much has already been said of the permanent beauty of the fruit of *Berberis Thunbergii*, and its praise is well deserved. Although it is possible that its value as a winter food-providing plant for game birds may be overestimated by some, there is no question of its ornamental character. Its fruit is still the brightest of all the shrubs, and that of no other Barberry approaches it in beauty at this season. The upper berries of the bunches of Coral-berries or Indian Currants (*Symphoricarpos vulgaris*) become sunburned, but most of them retain a bluish red or crimson color; and the conical panicles of fruit of the Sumachs (*Rhus typhina* and *R. glabra*) are red, in some cases having a brownish tinge.

Of black-fruited plants there are several which keep their fruit in a full and unfaded condition. Few of the berries of these remain so bright as that of the common Privet (*Ligustrum vulgare*). There is a yellow-fruited variety of this (var. *xanthocarpa*) which, although not rare, is not often seen. *L. Ibota*, an Asiatic species, bears fruit in greater abundance than the common Privet, and it is also smaller and more loosely set on the panicles. It is black, with a heavy, persistent bluish bloom, and may be considered more interesting than strictly ornamental.

Arnold Arboretum. *J. G. Jack.*

Fern Notes.—II.

IN considering Ferns suitable for cool-house culture there is an embarrassment of choice. So many excellent species and varieties are adapted to this treatment that it is impossible to mention more than a very small proportion of them here. Some hints were given last week about a few of the strong-growing sorts, and attention is now called to a limited list of more dwarf species, many of which are quite distinct in character. In establishing a cool-house collection of Ferns a few Gleichenias must be chosen, because they are undoubtedly among the handsomest plants of their class; and while they will attain quite a large size, yet they may be kept within reasonable bounds for a number of years, and when well grown always excite the liveliest admiration. Among the species of this genus most suitable for small collections are *Gleichenia dicarpa*, *G. Speluncæ*, *G. semi-vestita*, the latter being much like *G. dicarpa* in general appearance, and *G. dichotoma*, *G. rupestris* and *G. Mendelii* are also good; *G. flabellata*, though a

* Bradley, "Ten Practical Discourses Concerning the Four Elements, etc.," 71.

splendid species where fit accommodation can be provided for it, is rather too large for a small fernery. The Gleichenias may be increased by division, but in performing this operation it is safest to sever the rhizomes some time before potting them off, so that the pieces may become well rooted before finally removing them from the parent plant.

Hypolepis distans, a well known and very pretty Fern, grows best in the cool fernery, where it soon makes a dense mass of its dark green, finely divided fronds. It is readily increased by division of the rhizomes, the latter being of rapid growth, and with some slight attention after the division is effected the young plants soon become established. *Doryopteris nobilis* and *D. palmata* are both excellent plants, and form a good contrast with some of the finer-leaved Ferns, the bold, strong foliage of *D. nobilis* being very effective. Some of the Lomarias, notably *L. ciliata*, *L. gibba*, *L. gibba crispa*, *L. fluviatilis* and *L. nuda*, may be highly commended for the cool fernery, being not only easily grown and propagated, but also very ornamental in character. The Lomarias in general do better under cool treatment than in a stove temperature, besides being less liable to the attacks of thrips and other insects.

Many of the Nephrodiums (Lastreas) may be counted among hardy Ferns, but there are some that require cool-house cultivation, and among the latter, *N. glabellum*, *N. Sieboldii* and *N. opacum* (or *varium*) are all good sorts, and well worthy of a place even in a small collection. A few of the Fern curiosities, or oddities, can be included in this brief list—for instance, *Polypodium* (*Niphobolus*) *Lingua*, *P. Lingua variegatum* and *P. Lingua corymbiferum;* the leathery-looking, simple fronds of the two first and the much-divided and crested ones of the last are all equally quaint and interesting. These Polypodiums are natives of Japan and China, and are chiefly increased by division of the rhizomes.

Another most interesting form is our native "Walking Leaf" (*Camptosorus rhizophyllus*); its indefinite manner of growth from the apex of the frond, from which it produces young plants, is well known, and gives some propriety to the above local designation. A plant of similar characteristics, though perhaps not so widely known, is *Fadyenia prolifera*, a Jamaican Fern of much smaller growth than the Camptosorus, though having the same habit in regard to the proliferous nature of the barren fronds. The fertile fronds of Fadyenia are of a different character, being simple, erect and about six inches in height, and do not add greatly to the beauty of the plant, as they wither as soon as the spores are ripe.

If the conveniences are at hand for their culture a few of the beautiful Filmy Ferns should find a place in the collection, but unless a well-shaded and moist corner can be given them, it will be found best to grow them in a case, so that their atmosphere may be more easily controlled. Such gems as *Todea superba* and the so-called "Killarney Fern" (*Trichomanes radicans*) should not be neglected; and there are many of the Hymenophyllums which require similar treatment, though some of the latter are not benefited by being sprinkled overhead as is *Trichomanes radicans*.

Davallia strigosa and *D. hirta cristata* are both handsome species, the latter especially so, and making also a splendid exhibition plant. *Nephrolepis exaltata*, *N. pectinata*, *N. Duffii* and *N. rufescens tripinnatifida* are among the most useful of their genus, being particularly good for planting out on rockwork or for using in baskets. The Pellæas, Nothochlænas, Polypodiums and a multitude of other valuable Ferns cannot now be mentioned, but the intention is only to direct the attention of some inquirer toward this most beautiful and interesting class of plants.

Holmesburg, Pa. *W. H. Taplin.*

An Alley in the Tuilleries Garden, Paris.—See page 98.

Begonia manicata.—This is a beautiful old species from Brazil, and, under liberal treatment, one of the most useful in cultivation. It is of moderately free growth, and forms a neat specimen when young. The short, fleshy stems are well clothed with large, oblique leaves of a glossy green color, the footstalks of which are encircled, irregularly, by little hairy scales of a bright reddish color; similar scales appear also on the veins that prominently mark the under side of the leaves, and sometimes on the flower-stalk. The pale pink flowers are small, but very freely borne in erect and large branching panicles; they are exceedingly decorative, and continue in full beauty for a considerable period. The plant may be readily propagated from cuttings—inserted in sandy soil, and placed where they may obtain a moderate amount of bottom-heat, with shade from sunshine till rooted—at any season. During summer they should be shaded from bright sunshine, and kept near the glass, in a house that affords an intermediate temperature, with a moist atmosphere; in winter shading will be unnecessary, and, as that is the flowering season, a somewhat drier atmosphere will then be requisite. The flowering season may be prolonged by the administration of weak liquid manure occasionally. When this season has passed the plants should be cut back slightly, just sufficient to keep them in proper shape, as they are liable to assume a disorderly appearance as they grow old, rested for a brief period, and then repotted.

Habrothamnus elegans.—Ever since its introduction, some fifty years ago, this plant has enjoyed the greatest popularity among the owners of greenhouses in Europe. In this country it is, unfortunately, not quite so popular, but few who see it well grown will rest contented until it has been added to their collections. To see the plant in all its gracefulness and beauty, and to understand that such perfection in culture can be attained with the greatest ease, by no means conveys a complete idea of its meritorious character. Add to these qualities the fact that its beauty continues throughout the entire year, and is most intense during the dull periods of winter and spring; add further the fact that it requires only enough artificial heat to exclude frost, and you will have gained a fair estimate of its utility. It is, in this climate, essentially a greenhouse plant, but it is not at all tender. In its native country of Mexico it grows at an altitude of 4,000 feet, and that fact indicates its comparative hardiness. It is a rather tall-growing shrub, of somewhat slender growth, with dark green, ovate-lanceolate, alternate leaves. The younger branches and the under side of the leaves are pubescent. The tubular flowers, about an inch in length and of a reddish purple color, are freely produced in dense terminal cymes. When the flowers are artificially fertilized, they are succeeded by brilliant red berries, that lend the plant an additional charm. It is seen at its best when planted in a border and trained on a pillar, trellis or the back wall of a lean-to house; in such positions it grows and blooms continuously. When grown in pots it should have abundance of root-room, and an occasional application of liquid manure helps it materially. As the flowering shoots proceed from the previous season's wood, some special care must be exercised in the matter of pruning; these operations, however, are necessary only when the growth becomes too dense or when the plant gets beyond its proper limits. Cuttings, made from firm young shoots, produce roots very readily when inserted in sandy soil during spring or summer, and kept shaded for a few days. Under the more recent name of *Cestrum elegans* this plant is now known to many.

Botanic Gardens, Cambridge, Mass. *M. Barker.*

Correspondence.

A So-called "Poisonous" Primrose.

To the Editor of Garden and Forest:

Sir.—The literature of the alleged poisonous character of the *Primula obconica* commences in Garden and Forest. In its issue for May 2d, 1888, Doctor James C. White, of the Harvard Medical School and a specialist in skin diseases, states that he was consulted "by one of our largest dealers in flowers, for an inflammation of the skin of the hands and face. The appearance which these parts presented indicated a *dermatitis venenata* of an eczematous type." The florist attributed his trouble to some plant that he had been handling, and suspicion fell upon an *Acacia pubescens* and *Primula obconica*. Some of the florist's assistants were attacked in a similar manner. This skin trouble did not appear until after the plants were brought into the shop and were handled in large quantities. To confirm his suspicions, Doctor White wrote to Professor Goodale, of Harvard, asking if he had ever known this Acacia or this Primula to cause skin troubles. Professor Goodale referred the matter to the gardeners at the Botanic Garden, and replied: "Our gardeners say that they have not experienced any trouble from *A. pubescens* or *P. obconica*, but that there is a plant, as yet undetected, which has lately given them a good deal of irritation." Early the following year Dr. White returns to the subject, and in Garden and Forest of February 20th, 1889, page 94, after referring to the issue of the previous year, he says: "The florist and some of his assistants, whose skin disturbance, therein (last year) described, *dermatitis venenata*, subsided in a short time, and the skin of the three affected persons has remained in a healthy condition until recently. Within the last two or three weeks, however, they have all manifested a recurrence of the same symptoms in about the same degree as last year." *Primula obconica*, one of the suspects of the former year, they now feel assured is the cause of the trouble, as this did not manifest itself until this plant came into the store for sale and had been freely handled in making up floral decorations.

The next evidence comes from Joseph Meehan, of Germantown, Pennsylvania. In Garden and Forest for March 27th, 1889, Mr. Meehan quotes from a letter of David Cliffe, who, after potting a lot of *Primula obconica*, had his face so swollen that he remained completely blind for a day. This was the severest case yet reported; but it should be stated that Mr. Cliffe was at that time suffering from poisoning by *Euphorbia* (*Poinsettia*) *pulcherrima*. Mr. Meehan states that he himself is obliged to avoid contact with Poison Ivy (*Rhus Toxicodendron*), and that the seeds of Oregon Maple (*Acer macrophyllum*) and of Hop Hornbean (*Ostrya Virginica*) excite itching and inflammation of his hands, while many others who have handled them are not at all affected. These seeds, he states, "are both covered with minute hairs." On June 12th, 1889, Garden and Forest published a note from Mr. John N. Gerard, of Elizabeth, New Jersey, in which he gives the testimony of a lady who, with several daughters, had experienced most serious inconvenience from handling *Primula obconica*.

English gardeners, as a rule, do not appear to be so susceptible to the irritation caused by *Primula obconica* as do our own, or it may be that the plant grown in the humid climate of Great Britain has its irritating properties less conspicuously developed than in this country.

It is certainly singular that so many should have suspected *Primula obconica* as the cause of annoying skin troubles in themselves and others, without closely examining the plant. A pocket magnifier of moderate power would have revealed such a condition of hairiness that would have suggested further examination with a compound microscope. Both surfaces of the leaves, and especially their margins, show a great abundance and variety of hairs, while the petioles or leaf-stalks are conspicuously hairy, as may be seen without the aid of a glass. To one interested in *Trichomes*, this plant presents material for study in great abundance and variety.

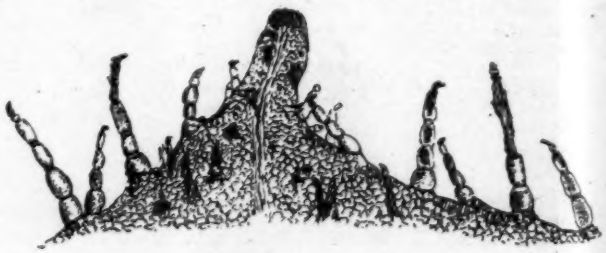

Fig. 23.—Magnified leaf-hairs of Primula obconica.

At my request, Mr. John Payne has made a drawing of a fragment of a leaf as it appears under a microscope. This shows the hairs which fringe the margins of the leaves and the calyx-lobes. The large projection in the engraving is one of the teeth upon the margin of the leaf. The surface of a leaf shows some hair like those on the margin, others much shorter and some much longer and weaker. The hairs upon the petioles, so long as to give them a shaggy appearance, present, under the microscope, a great variety in appearance. The hairs are seen to be made of many cells placed end to end. These cells are oblong in outline and diminish slightly in size from the base upward. Frequently one of these cells is much narrower than the one above and the one below it, appearing like a mere stem connecting two parts of the hair. This occurs in no particular portion of the hair, and sometimes there are two constrictions of this kind in the same hair. In many plants the cells have a deposit of silex. This

is the case with *Primula obconica*. If a portion of a leaf, including a portion of the margin, or of the calyx, be simply boiled in nitric acid, the contents of the cells will be removed, leaving a skeleton of the cells in silex, and in this Primula the hairs are shown to have a silicious skeleton. All traces of the acid being removed by abundant washing, the specimen may be mounted. The large proportion of silica in the hairs of this Primula would tend to render them brittle; it would also give them firmness to penetrate the skin when the plant was handled, and, breaking off, they would remain and cause irritation. Has any one examined the skin of an affected person with a magnifier to see if the hairs were remaining in the skin? I did not meet with the only person among my friends whom I know to be affected by the Primula until long after the irritation had ceased. Some have likened the effects produced by *Primula obconica* to those of *Rhus Toxicodendron*, the Poison Ivy, but it is a well established fact that many persons are poisoned by Rhus without coming in contact with the plant. Merely passing near it or being near a fire where it is being burned is sufficient to cause serious poisoning, indicating that the active principle is volatile. In stinging with Nettles an acrid liquid is said to be injected into the wound made by the stinging hairs. Is the irritation caused upon the skin of those who handle *Primula obconica* any different from what would be caused by a multitude of very fine pine or other splinters? Those who have traveled in the Cactus region of Arizona and neighboring territories are well aware of the irritation that may be and often is caused by the entrance of minute spines into the skin, and do not need to consult a work on *dermatitis venenata* to learn if the Order *Cactaceæ* has furnished, among its eighty-six genera, one or more species which have been known, upon good authority, to produce some degree of inflammation of the skin by contact. The one thing needed in the case of *P. obconica* is a careful investigation as to the character of the disturbance it causes and how it produces it. If, as now appears probable, the hairs with which the plant is abundantly provided are the cause, do these hairs inject any acrid liquid or other substance into the skin? Though contact with the plant is said to produce skin-poisoning, is there any proof of the presence of a poison of any kind as that term is generally understood? What proportion of those who handle the plant are unpleasantly affected? Are persons of a peculiar habit or complexion more susceptible to its effects than others? If these points appear trivial, it should be considered that no plant has been introduced into cultivation in a long time possessing so many elements of popularity as *P. obconica*. It is of great value to the florist, to whom its ready propagation, its abundant and continuous bloom and its adaptability to bouquet and decorative work all commend it. But to the amateur cultivator and lover of plants, whether he cultivate it in the window garden or elsewhere, it is an almost perfect plant. In view of its irritating qualities, some conscientious florists have ceased to offer it for sale, and it promises to pass out of cultivation altogether. With the hope of averting what would be a floral calamity, I plead for investigation, that we may know the extent of the evil. Before it is too late it will be prudent for those microscopists interested in the study of minute plant structure to secure material while it is still to be had.

Passaic, N. J. *George Thurber.*

Mocking at Knowledge.

To the Editor of GARDEN AND FOREST:

Sir.—May I claim a little space in which to protest, in the interests of our young folks, against something that I find addressed to them in the pages of a magazine which we have long been accustomed to consider a source of valuable instruction? The department of *Saint Nicholas* called "Jack-in-the-Pulpit" has interested many children in the works of nature, but why should it teach that knowledge of these works destroys the enjoyment of them? In the February number of the magazine a lady who writes of a recent suggestion that it would be well to use the scientific name of *Epigæa repens* instead of the inaccurate Arbutus, says: "If we begin to use the scientific names, where shall we stop? The next thing will be to call the delicate Spring Beauty, *Claytonia Virginica*. . . . (By the way, the botanists seem to have had a hobby for calling things after Virginia and Carolina and Canada; when they got tired of using these they named all the rest of the plants after foreign travelers.) But there is worse yet to come. . . . The truth is that the botanists themselves sometimes have two or three names for the same plant. . . . And just think how we have been twitted with having different common names in different parts of the country! Since I can remember, the dear little Bluets were named *Oldenlandia cærulea*. Afterward they were changed back to *Houstonia cærulea* by the great Mr. Gray himself. How much simpler just to call the pretty things Bluets! The truth is, my dears, that the Latin names make a herbarium look very learned; and when you collect one I hope you will take great pains to have the plants properly labeled. But what would your poets do with *Houstonia cærulea* in their verses? I do not think such terms are suitable for the finer uses of life and literature; so I hope you children all will take pains to learn the common names of the flowers. I only wish you could tell me every one; but perhaps some one will yet make a dictionary of them."

Considering the brevity of this extract, does it not say or suggest a surprising number of misleading things? The reader is led to believe, for instance, that from the standpoint of agreeable sound scientific names, as a class, are greatly inferior to vernacular ones. But is Milkwort prettier than Polygala, or Woad-waxen than Genista, or Tick-trefoil than Desmodium, or False Indigo than Baptisia, or False Mitrewort than Tiarella? Which would a poet prefer to say, Sweet-gum or Liquidambar, Pepperidge or Nyssa, Fetid Marigold or Dysodia, Sneeze-weed or Helenium, Shin-leaf or Pyrola? And would he really object so much even to Claytonia or Houstonia? Of course a list pointing the other way might be made out as easily as this one could be greatly extended. I do not mean to say that all scientific names are musical, or all common ones ugly; only, that to arraign scientific names as a whole from the "æsthetic" standpoint is a foolish act as well as a useless one. It is worse, however, to imply that a hard and fast line can be drawn between the two classes of names. What would the writer call a Dahlia or an Aster or a Nasturtium, a Wistaria, a Fuchsia, a Gerardia, an Azalea or a Chrysanthemum, a Rhododendron, a Sassafras? Would she call Calypso and Arethusa each simply "an Orchid" to avoid scientific terminology—and, by the way, would she find the terminology in this case unfit for poetic or any other "fine" use? How much better it would have been, while quite as easy, to explain that no line can be drawn between the two kinds of names; to show that sometimes the scientific name is perfectly familiar and "common" and often there is no other; that sometimes there is another which is "commoner" in the sense of being English yet is much less familiar even to non-scientific ears; that sometimes there are two which differ only by the change of a letter or so (as with Orchid, Heliotrope, Lily and Gentian); and that often, of course, the vernacular name is so well known and sufficient that even a botanist would not use the scientific one in conversation or ordinary writing unless he were the worst of pedants. And if the author truly desired that the common names of plants should be known, might she not well have counseled an acquaintance with scientific terminology? Do we not all know how difficult it is to find some one to tell us the common names? But we can find them in the "botany books" if we know how to find the scientific name first. "Perhaps some one will still make a dictionary of them;" is not this just what has been done by botanists in their handbooks and what could not be done by any other method than theirs? For how is a plant to be described so its right to a name can be made clear except by means of the terms which scientific writers employ? Any one who has even the most superficial acquaintance with his "Gray's Manual" knows the common names of plants far better, I venture to say, than the most enthusiastic flower-lover who scorns everything "scientific." Of course I need hardly explain here that if a person feels enough interest in plants to wish to recognize different closely related species, then he must, in almost every case, use scientific names or none at all; nor, on the other hand, that it is not always needful to tack the specific to the generic name—that even botanists do not say *Claytonia Virginica* when Claytonia would do as well, or refuse to speak of Houstonia without adding the *cærulea*. But these are just the things that ought to be explained when a magazine professes to wish to interest young readers in the works of nature. Would it not have been as interesting to point out why botanical names have been duplicated as to twist the fact as the writer does? And, instead of laughing at the constant reference to Carolina, Canada and Virginia in botanical nomenclature, would it not have been instructive to cite a few historical facts in explanation, and likewise to indicate the biographical significance of the perpetual use of the names of "foreign travelers"? In short, cannot knowledge be made as attractive to children as a "sprightly" mocking at knowledge? *A Mother.*

New Haven, Conn.

Esparto Grass.

To the Editor of Garden and Forest:

Sir.—Can you tell me whether the Spanish Esparto Grass is growing anywhere in the southern States, and whether it can be successfully introduced on the alluvial lands of our southern rivers? I make this inquiry as bearing on the question of the production of a good vegetable fibre for the manufacture of paper.

Hill City, Tenn. *F. G. Hampton.*

[We are informed by Dr. Vasey, of the Department of Agriculture, that numerous attempts have been made to grow the Esparto in this country, but without success up to a recent date. Two years ago considerable seed was sent out from the Department, but no reports of success with it have been received. But at Berkeley, California, in the grounds of the California Agricultural College, Dr. Vasey saw last year a long row of this Grass growing very luxuriantly, from which considerable seed had been distributed; so that it appears that the Esparto can be successfully grown in California, and there seems to be no reason why it should not succeed also in the Atlantic states.—Ed.]

Recent Publications.

Plants of Baja California, by Townsend Smith Brandegee. Reprinted from the *Proceedings of the California Academy of Science*, ser. 2, vol. ii., pp. 117, 232; illustrated with twelve plates.

Mr. Brandegee's contribution to our knowledge of the botany of Lower California is one of the most interesting papers on American plants which has recently appeared. Up to the present time very little has been known concerning the botany of the southern part of the Lower California peninsula. Her Majesty's ship "Sulphur," during her voyage of exploration, touched at Cape St. Lucas and at Magdalena Bay in 1839, and the naturalist, Mr. Hinds, made a small collection of plants at these places. Cape St. Lucas was next visited in 1860 by Mr. Zantus, who was the last botanist who visited this region until 1887, when Mr. Walter E. Bryant, the ornithologist, made a small collection of plants from the neighborhood of Magdalena Bay, and Dr. Edward Palmer visited Los Angeles Bay and Muleje. Mr. Brandegee, in the journey which he made through the peninsula last winter, had the opportunity not only to collect again the little known plants of Hinds and Zantus, but to discover several new species, which he describes in this paper.

The peninsula of Lower California, a long, narrow strip of land often not more than sixty miles wide, consists of a mountain range varying in height from two to four thousand feet, with its backbone near the gulf shore and a long gradual slope to the Pacific Ocean. The climate is much warmer on the gulf shore than it is on the Pacific side of the peninsula.

Mr. Brandegee landed in Magdalena Bay in about latitude 24, in January. In the mountains and on the sand-flats about the town of Magdalena Bay 106 species of plants were found; many of these were seen nowhere else, except on the neighboring island of Santa Margarita. No trees grow on these islands with the exception of Veatchia, the Elephant-tree, certainly one of the most curious and remarkable of American trees, first detected in this region by Mr. Hinds, but best known by Dr. John A. Veatch's description of the trees, which much later he detected on Cerros Island. Veatchia is related to Rhus, from which it differs principally in its valvate sepals, accrescent petals, and thin-walled fruit. The flowers, which quite cover the leafless branches during the winter months, are either bright pink or yellowish gray, Mr. Brandegee noticing the different colors on different trees. Veatchia is dœcious, but the color of the flowers bears, apparently, no relation to sex. The Elephant-tree attains, sometimes, on the mainland, a height of ten to twenty-five feet, with a trunk one to two feet in diameter. It has low, tortuous, widely-spreading branches, and fascicled leaves one to three inches long, with sessile leaflets, and axillary or more or less large, terminal panicles of minute flowers. It is known locally in Lower California as "Copalquien," and the bark, as is the case with many species of Rhus, is used in tanning leather. The ripe fruit has not yet been collected. According to Dr. Veatch, for whom Dr. Gray named the genus, separating it from Rhus (the plant was first referred by Bentham to Schinus, in his description of the plants collected by Mr. Hinds on the "Sulphur" voyage), "it derives its name from the elephantine proportions of its sturdy, heavy-looking trunk and branches. The main trunk of a full grown tree will probably average two feet in diameter, the height being a little more and often less than the diameter. The trunk divides into several ponderous branches that shoot off horizontally, and are bent and contracted in grotesque resemblance of the reflexed limbs of a corpulent human being. These huge branches often terminate suddenly in a few short twigs covered with a profusion of red flowers, reminding one of the proboscis of an elephant holding a nosegay. The resemblance is heightened by the peculiar brown, skin-like epidermis that forms the outer bark, which splits and peels off annually, accommodating the increase of growth. The branches of the larger trees often shoot out to a horizontal distance of twenty feet from the trunk, thus covering an area of forty feet in diameter. Smaller subordinate limbs spring upward from the upper side of the large boughs, and in this way give a neat oval appearance to the outline of the tree. When loaded with its bright red flowers the effect is strikingly beautiful, particularly where hundreds of the trees stand near each other, intertwining their huge boughs and forbidding ingress to the mysterious space they cover and protect. The young tree looks a good deal like a huge radish protruding from the ground with but a slight root and a few twig-like branches expanding from the top."

Mr. Brandegee, from Magdalena, went up the lagoon to San Gregoria, where a number of new plants were found. One of the most interesting, perhaps, is the new Ipomœa, first detected on Magdalena Island, and for which the name of *I. Jicama* is proposed. It is a woody species climbing about over shrubs and producing large white flowers. The chief interest of this plant, however, is found in its roots, which "bear tubers that are much sought for on account of their fine flavor and watery juice. One weighing six pounds is said to have been found, and traditions of a ten-pounder are extant; but the largest seen weighed two or three pounds and they are usually much smaller. These tubers must grow very fast during the rainy and spring season, for their location, often three feet or more from the base of the stems, is discovered by the growth cracking the soil. New stems never spring from them and their use to the parent plant is uncertain; perhaps it is to store up moisture to be drawn during the dry season. These round tubers or "Jicamas" are always eaten raw and resemble in taste a turnip somewhat sweetened. Wherever the plant grows, near plantations or along trails, numerous little hollows may be seen around the plants at distances varying from two to four feet, showing the places from which the tubers have been dug."

From San Gregoria our traveler proceeded to Comondu, where two weeks were given to a careful exploration of the flora, and then, with a pack train and guides, was begun the principal journey, which carried the party through the centre of the peninsula for a distance of nearly five hundred miles, over a dry, desolate, rocky and almost uninhabited region, finally landing them, at the end of a weary march of two months, at San Quintin, two degrees south of San Diego. A fine new Agave, for which Mr. Brandegee proposes the name of *A. sobria*, was the most conspicuous plant on the high *mesas* about Comondu. It is described as ten feet high, with thick radical leaves and a panicle of five hundred dark yellow flowers. After leaving Comondu no great change was observed in the flora for several days. *Rhus laurina*, a common tree or shrub covering large areas in southern California and in the northern part of the peninsula, was first seen near San Jose de Gracia, no doubt at the southern limit of its distribution; and near here were several large forests of *Cereus Pringlei* (see Garden and Forest, ii., 6). For a new arborescent Yucca Mr. Brandegee proposes the name of *Yucca valeda*. It attains the height of fifteen or twenty feet, with trunks eight inches to two feet or more in diameter, growing in clumps and branching from the base. The leaves are thin, smooth, flexible, six to nine inches long and only a half to three-quarters of an inch wide, the margins dividing into slender white threads. The panicle of flowers is very short, only about a foot long and somewhat pubescent. The flowers are creamy white, two to two and a half inches broad, on peduncles nearly as long as the segments of the perianth, which are broadly lanceolate. A photograph (plate xi.) represents a wide-spreading specimen of this interesting plant, which, near Patrocinia, forms forests miles in extent; the trees, Mr. Brandegee remarks, being in general appearance strikingly like those of *Y. brevifolia* of the Mohave Desert, though the trunks are less covered with the old reflexed leaves. The old Catholic Mission at San Ignacio, embalmed in a forest of Date Palms, seemed

like an oasis in the desert. At San Julio, a cañon eight hundred feet deep, with walls apparently perpendicular, was explored, and here was found, no doubt at its southern limit, the Holly Cherry of California (*Prunus ilicifolia*), with the entire leaves which characterize the form peculiar to Santa Cruz Island. Veatchia re-appeared at San Pabalo on the mountains, and afterwards was often encountered as far north as San Fernando. "The trail from San Ignacio passed," Mr. Brandegee tells us, "over high mesas, down and up deep rocky cañons all the way to San Pablo and mostly over sandy plains from there to Calmulli. A great change in vegetation took place in this vicinity, and many of the characteristic plants at the south, that were abundant on the sandy plains about Cañon Grande, have now disappeared, and thenceforward, until we reached the Gulf coast at the Soda Springs of Calamujuet, the flora resembled that so familiar to us in southern California." Such Arizona trees as *Dalea spinosa*, *Olneya Tesota*, *Chilopsis saligna*, form a large part of the vegetation at Calamujuet, although Veatchia was still the most conspicuous object; "the trees, covered with pink blossoms, forming a perfect blaze of color which could be seen plainly miles away." "Annuals, both at Magdalena Bay and San Gregoria, bloom in January and February, and by April have for the most part disappeared. Many shrubs ripen their fruit in January, although many species of Cactus and some perennials do not flower until April or May. The most noticeable feature of the flora over the whole region visited by Mr. Brandegee is the *Cactaceæ*, which often form forests and impassable thickets, and brighten the landscape in May with their showy flowers. Agaves are common and cover the ground in some localities. Leguminous trees are, on the whole, the most common and furnish most of the wood used by the inhabitants. The bruised stems of *Cereus gumosus* are used for stupefying fish. The leaves of *Lippia barbata*, a shrubby species, are employed in cooking to flavor meat, while those of another shrubby species, *L. fastigiata*, under the name of "Damania," are made into a sort of tea.

Among other interesting plants detected by Mr. Brandegee are *Polygala apopetala* (plate iii.), a shrubby species; a new Horsfordia, a new Spæralcea, with slender, herbaceous stems, eight feet high, and a new Gossypium, which Mr. Brandegee dedicates to Dr. H. W. Harkness, President of the California Academy of Science, "as a tribute to his efforts in furthering the exploration of Lower California;" a new Bursera, several Daleas and Hosackias, an arborescent Lysiloma, whose bark is used for tanning hides used to hold the wine of the country, which thus receives a disagreeable flavor from the bark of this tree. Several new Cereus and Opuntias, and an interesting Aralia (*A. Scopulorum*, plate viii.), a shrubby species, four to ten feet high, with petioled leaves, with three to seven leaflets, and compound inflorescence, are described. A new genus, Alvordia, in *Compositæ*, in honor of William Alvord, the President of the Bank of California, "in recognition of his well known unceasing interest in and efforts for the furtherance of botanical knowledge," is proposed for a suffrutescent perennial. *Gilia gloriosa* (plate xi.) is a shrubby species, densely branched, and forming round clumps, three or four feet high, about which Mr. Brandegee remarks that "it will be difficult to exaggerate its beauty as it is seen growing in rounded masses, with the many-shaded large blossoms crowded toward the end of the branches." Unfortunately, no seed could be obtained of this plant, which appears to be very local, having been observed only at one place—Ubi.

To Mr. Brandegee's paper is appended an account of his plants of the Euphorbia family, from the pen of Dr. C. F. Millspaugh, and a list of fungi, by H. W. Harkness.

Recent Plant Portraits.

MONTBRETIA CROCOSMIÆFLORA, *Revue Horticole*, January 16th; a group of some of the newer varieties, obtained by M. Lemoine, of Nancy.

SOLANUM MACRANTHUM, *Gardeners' Chronicle*, January 18th; Mr. W. Botting Hemsley throws considerable new light upon this fine species, at one time supposed to be a native of southern China, but now shown to be identical with a specimen collected by Mr. Pearce on the Amatala River, at an elevation of from four thousand to five thousand feet, in Bolivia. *Solanum macranthum* becomes a tree fifteen to twenty feet high, called, at Hong-Kong, where it appears to have been long cultivated and where it flowers throughout the year, the Potato-tree. Carrière pointed out, some time ago, that it was cultivated at Cairo, where it succeeds admirably and forms an ornamental tree of the first order. In France it is used in so-called sub-tropical gardening—that is, young plants started under glass in winter are planted in the open ground at the beginning of summer, and attain, under good cultivation, a considerable size before frost. It is one of the species with large, lobed leaves, with scattered prickles, and it has great clusters of flowers, each three inches in diameter, and varying in color from white to an intense violet-blue, with large, bright yellow anthers. *S. macranthum* may be expected to succeed in some parts of California and possibly in the southern Atlantic States.

DARLINGTONIA CALIFORNICA, *Gardeners' Chronicle*, January 18th; the portrait of a beautifully grown plant from the Mount Merion gardens near Dublin, the largest pitcher measuring three feet nine inches in length. This is probably one of the very best specimens of a peculiar plant, difficult to manage in cultivation, which has been produced.

LÆLIA GOULDIANA, *Gardeners' Chronicle*, February 8th, a figure of this handsome winter-blooming species, from a plant which produced ten spikes and over forty of its bright rosy crimson flowers at Christmas-time in Sir Trevor Lawrence's garden. *Lælia Gouldiana* was an introduction of Messrs. Siebrecht & Wadley, of this city, and was named for Mr. Jay Gould.

Exhibitions.

Orchids at the Eden Musée.

THE fourth annual exhibition of Orchids, which is now in progress under the direction of Messrs. Siebrecht & Wadley, has been more numerously attended than any of its predecessors; indeed, the throngs on some days have been so dense that an inspection of the flowers was almost impossible. And the visitors found much that was worthy of study and admiration. As usual, the larger portion of the plants came from the Rose Hill Nurseries, but the contributions from the collections of Mrs. F. Goodrich, of Mr. W. S. Kimball, of Mr. J. Eyerman, of Easton, Pennsylvania, and Mr. Frederick Mau added greatly to the value and interest of the display. Indeed, the group of hybrid Cypripediums which Mr. Kimball sent on from Rochester and which nestled modestly among the Ferns on a little circular table in the centre of the room, was to many connoisseurs the most attractive part of the show. Here was *C. Winnianum* between its parent plants, *C. Druryi* and *C. villosum*. Near these was the delicate *C. Measuresianum*, with *C. euryandrum majus*, *C. Argus*, Kimball's variety, *C. calophyllum striatum* and many more which are only found where the most rare and costly Cypripediums are collected. Another group of cut flowers sent by Mr. Kimball included such fine varieties as *Cattleya Trianæ Backhousiana*, the exceedingly rare *Cattleya amethystoglossa alba*, *Dendrobium nobile elegans*, *D. oculatum fimbriatum*, two long spikes of *Odontoglossum Coradinei pallidum*, *Zygopetalum rostratum*, the bright orange-scarlet *Ada aurantiaca*, the curious terrestrial Orchid, *Stenorhynchus speciosus*, with its coral-red spike and beautifully spotted foliage, the bright red *Epidendrum radicans*, spikes of *Schomburgkia undulata*, and many more of almost equal interest.

On the side of the hall beyond Mr. Kimball's flowers were twenty-five plants of *Cattleya Trianæ* exhibited by Mr. Frederick Mau, of Weehawken, New Jersey, which deserve special mention. Of course, the Cattleyas of this species were more abundant than any others, but Mr. Mau's plants had been selected as the choice of thousands, and in richness of color and firmness of texture they made a striking group. An unnamed and distinct Odontoglossum, in the way of *O. cristatellum*, was another noteworthy plant in this collection.

Mrs. Goodrich and Mr. John Eyerman contributed many fine flowers, among them the best example of the white flowered *Cattleya Trianæ*, and a beautifully colored *C. Bogotensis*, a flower rarely seen. The gem of the collection of Mr. De Forest, of Summit, New Jersey, was an immense plant of *C. Trianæ alba*, two feet in diameter.

The tables in the body of the room were usually arranged with large Palms rising from their centres, with the Orchids grouped about them in masses of *Adiantum cuneatum* and *A. Farleyense*. A superb *Seaforthia elegans* towered above Mr. Kimball's Cypripediums, a tall Chamærops graced another table, a Rhapis rose from a third, and in the anteroom was a magnificent Encephalartos, twelve feet through. All these were furnished by Messrs. Siebrecht & Wadley, as were the other plants used for general decoration. Ericas were abundantly used, and the stage was particularly attractive, surrounded by a double row of Heaths and Azaleas, behind a line of Adiantums and an edging of Lycopodium.

Among the Orchids from the Rose Hill collection were masses of finely grown Phalænopsis, many Oncidiums, including several good specimens of *O. Papilio*, a striking

group of the bold, rich colored *Cattleya Percivalliana*, Odontoglossums by the score, including a good example of *O. Rœzlii album*, well grown specimens of *Vanda suavis*, *Miltonia vexillaria*, *Cattleya intermedia superba* and many more. A unique Cypripedium is attracting much attention. It resembles *C. calurum*, but is much darker—a deep purplish red. The origin of the plant has not been made known.

The exhibition will remain open all the week.

Notes.

In former years the prices of cut flowers have invariably fallen from thirty to fifty per cent. on the arrival of Lent, but this year there has been no decline whatever in prices in this city.

Among the floral designs at the funeral of Her Majesty the Empress Augusta was a cross five feet long and more than two feet wide, made of White Lilacs, White Camellias, Lilies-of-the-Valley and *Cypripedium Spectabile*.

Nature announces the death, at Malta, of Dr. Gulia, Professor of Botany, Hygiene and Forensic Medicine in the University of Valletta. Dr. Gulia is known by his "Flora of Malta," an enlarged edition of which he left unprinted, and which is to be brought out by his son.

Mr. F. H. Horsford, of Charlotte, Vermont, and Mr. Edward Gillett, of Southwick, Massachusetts, have combined their nurseries of wild flowers and hardy herbaceous plants, at the latter place, where, under the firm name of Gillett & Horsford, their united business will be conducted hereafter.

In Leicestershire, England, a lawyer recently brought suit against a farmer, complaining that the latter allowed Thistles to grow in a certain field to such an extent that the plaintiff's garden, some 300 yards away, was seriously injured by their seeds. Damages were awarded to the amount of three guineas.

We read in the recent issue of *Science* that the result of the Prang canvass for a popular expression with regard to the national flower gives seventy per cent. of all the votes for the Golden-rod, sixteen per cent. for the Mayflower, and fourteen per cent. divided among the Daisy, the Mountain Laurel, Dandelion, Sunflower and various other plants.

According to Dr. Draper's calculations, the weather in this vicinity has been more abnormal this season than for seventy years past. The high temperature of November, of December or of January had been matched or overmatched during these seventy years, but taken together their average temperature was higher than that of any corresponding three.

Between the 21st of last October and the 7th of January George Klehm, of Arlington Heights, Chicago, cut 20,700 Violets in a greenhouse, devoted to this flower, which measures 125 feet by ten. H. Dale, of Brampton, Ontario, writes to the *American Florist* that between November 1st and January 17th he picked 10,550 Violets from a bench 100 feet long and only four feet wide.

Mr. Vogel, a timber-land explorer, recently returned from north-western Manitoba, reports, in one of the "limits" looked over by him, "150,000,000 feet of White Spruce (*Picea alba*) log-timber killed by fire during the past season. This fire not only killed the trees, but burned the bark and most of the branches from the trunks, and about a foot of the moss and vegetable deposits from the surface of the ground."

Our London correspondent called attention to the fact that difficulty had been experienced in England in the cultivation of the handsome Bornean Pitcher-plant, *Nepenthes Rajah*, and that it was not successfully managed until it was removed from the hot-house to one with a lower temperature. It is worth recording that this plant is and has been flourishing for several years in the stove-house in Mr. F. L. Ames' garden, where it is grown with a general collection of hot-house plants, including a large number of Nepenthes, and where it forms pitchers freely, and is just now passing out of flower. No trouble has ever been found in managing the plant, whose living pitchers Mr. Court, an expert in the cultivation of Nepenthes saw at North Easton for the first time.

The January issue of the *Illustrirte Gartenzeitung*, of Vienna, names 108 "new roses for 1890." Seventy-three of them come from France and only five from this country—Rosalie and Marshall P. Wilder are credited to Messrs. Ellwanger & Barry, Dinsmore to Mr. Henderson, and The Queen and White Pearl simply to America. But on another page very high praise is given to Rainbow, a sport from Papa Gontier, introduced by Mr. J. H. Sievers, of San Francisco, which is called "the newest Rose." In the same number facts are cited with reference to the enormous Rose-growing establishment of the Messrs. Strauss in Washington, and are contrasted with the statement that when at a recent ball in Vienna it was decided to make extensive use of fine Roses, the city itself could supply but a very few, and Paris, Nice and Cannes had to be laid under contribution.

Mention was made in our last issue of a hybrid Rose raised at the Arnold Arboretum by crossing the Japanese *Rosa multiflora* with pollen of General Jacqueminot. Another of the seedlings produced by this cross has now flowered, and proves to be quite distinct from the plant which flowered first. The second seedling resembles its Japanese parent in foliage, and in its long, stout stems with rather remote, stout, hooked spines. The flowers are produced in clusters like those of *R. multiflora*. They are, however, semi-double, bright pink, and fragrant, although rather less so than the flowers produced on the first plant. These seedlings seem to show that Mr. Dawson has hit upon the right means to secure a race of hardy polyantha Roses with bright colored fragrant flowers.

A writer in a French periodical gives a curious account of the introduction of *Nicotiana colossea*, a relative of the Tobacco-plant of commerce, which was one of the finest ornamental plants shown at the recent Paris Exhibition. Several years ago he sold some Brazilian Orchids to a lady, whose gardener took the trouble to plant the trimmings and dust, as well as the Orchids themselves, in the greenhouse. A number of seeds germinated, and certain promising young seedlings, transplanted to the open air, proved to be *Nicotiana colossea*. Its leaves measure forty inches in length by twenty-two in breadth, are purplish and erect when young, but afterward a dark, shining green and spreading. The plant grows to be ten feet or more in height in the open air, where, in France, it has not bloomed. It is an annual in this situation, but a perennial in the greenhouse.

An idea of the wealth of the city of Paris in works of sculpture may be gathered from the fact that sixty-four figures and groups decorate the Tuilleries gardens, while the Luxembourg gardens contain sixty-seven, in addition to a number of decorative statues by unknown artists, which were brought from the park at Sceaux, and to the colossal fountain in the Avenue de l'Observatoire, for which Fremiet and Carpeaux supplied the figures. Almost all these works are originals by French sculptors, although some are fine copies from the antique. Even in the little Parc Monceau there are seven excellent statues, chief among them the "Sower" of Chapu, and the "Harvester" of Gaudez. As a rule, the placing of the statues has been as judicious as their selection, although occasionally they stand in the middle of a large lawn, where they can be well seen from one point of view only, and where they injure the breadth and repose of the lawn itself.

In "Humboldt" for December, 1889, is an interesting statement of the amounts expended by the Prussian State Forestry Commission to control the ravages of forest insects only. In 1884–85 were spent 200,550 marks; in 1885–86 were spent 171,404 marks; in 1886–87 were spent 191,645 marks. Of these sums the control of *Hylobius abietis* alone took from 107,200 to 109,300 marks. In commenting on these facts, *Entomologica Americana* remarks that the sums are suggestive, and yet the amount was absolutely necessary for the prevention of serious damage. Even with these sums, and the trained officials to apply them, the success in lessening the ravages was not satisfactory. It was not possible to do more than keep the pests in check. The destruction of the Cockchafer in the larval state is also still in the experimental stage, and the results are not satisfactory. The complaints in other parts of the empire of damage by white grubs are even greater than they are in Prussia, and some practical remedy would be a boon of inestimable value.

Catalogues Received.

CHARLES A. MCBRIDE, 64½ West Bay Street, Jacksonville, Fla.; Fruit and Ornamental Trees, Shrubs, Roses, etc.—JOHN R. & A. MURDOCH, 508 Smithfield Street, Pittsburgh, Pa.; Vegetable and Flower Seeds, Plants, etc.—PITCHER & MANDA, United States Nurseries, Short Hills, N. J.; Hardy Perennials, Aquatics, Alpines, Orchids, Ferns and Small Shrubs, Chrysanthemums, etc.—RUMSEY & CO., Ld., Seneca Falls, N. Y.; Spraying Pumps.—T. H. SPAULDING, Orange, N. J.; Chrysanthemums.—E. W. REID, Bridgeport, O.; Small Fruits, Fruit Trees, Seeds, etc.—FRED. ROEMER, Quedlinburg, Germany; Flower and Vegetable Seeds, etc.—E. D. STURTEVANT, Bordentown, N. J., and Los Angeles, Cal.; Rare Water Lilies and other Aquatic Plants.—THE STORRS & HARRISON CO., Painesville, O.; Seeds, Plants, Trees, Small Fruits, etc.—SAMUEL WILSON, Mechanicsville, Bucks County, Pa.; Garden, Flower and Vegetable Seeds.